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## THE DEVELOPMENT OF ROMAN MAILED CAVALRY

By JOHN W. EADIE

(Plates ix-xi)

The willingness of the Romans to adopt foreign military practices and to modify, and hereby strengthen, legionary organization, equipment, and tactics is well-documented and has been discussed frequently by modern scholars. One manifestation of this pragmatic approach, however, has not received the attention it deserves—viz. their attempts during the Empire to develop an effective cavalry. In this effort the Romans employed a variety of cavalrymen and cavalry tactics, but one of the most interesting and certainly one of the most enduring products was the mailed cavalry. The origin, development and success of this force—which became a prominent branch of the Roman army after the first century A.D.—cannot be analysed without some reference to earlier experiments with cavalry equipment and tactics in the Mediterranean area. The Romans did not invent the heavy-armoured horseman: on the contrary, the innovators were the Assyrians, whose monuments uniquely illustrate the evolution of cavalry technique in antiquity.<sup>1</sup> Delineation of the Assyrian development is instructive, for they were required to solve many of the technical and tactical problems which later confronted the Romans. Moreover, the tactics employed and the cavalry types created by the Assyrians are remarkably similar to the later Roman. To facilitate comparison of the Assyrian and Roman experience, in the following assessment the equivalent Greek and Latin terminology has been supplied for each phase in the Assyrian development.

### A

The introduction of regular cavalry into the Assyrian army was effected by the middle of the ninth century B.C., for sculptures at Nimrud from the reign of Aššur-nasir-apli II (883–859) depict unarmoured Assyrian mounted archers, equipped with bow and sword, attacking enemy mounted archers.<sup>2</sup> The appearance of the enemy mounted archers in the reliefs suggests that the Assyrian light cavalry may have been created primarily to combat nomadic invaders—i.e. the Assyrians simply responded in kind. Indeed, the Assyrian mounted archers (*ἱπποτοξόται* = *sagittaria equitata*) resemble the horsemen of the Steppes, who, according to E. Darko, developed ‘la tactique Touranienne’—a combination of skilled horsemanship and the ability to use the bow effectively while mounted.<sup>3</sup> Technologically the Assyrian development of cavalry equipment and tactics was not an unparalleled innovation: the nomadic model was near to hand and could be adopted, the domesticated horse was available through purchase or plunder, and existing infantry archers could be trained to fight on horseback. The effect of the transition from an army of *pedites* to an integrated force was nonetheless revolutionary: against highly mobile archers the conventional infantryman would be neither safe nor effective.

The Assyrian *ἱπποτοξότης* was not, however, the ultimate weapon. Despite his superior mobility the unprotected rider was still vulnerable to attack from infantry archers. Moreover, in encounters with other mounted archers—e.g. in the nomadic armies—the Assyrians would not enjoy any advantage. Thus, to protect their mounted archers and to maintain tactical superiority the Assyrians introduced and gradually developed cavalry armour. Evidence of this innovation is found first in the sculptures of Tiglath-Pileser III (745–727) from Nimrud, which depict a rider wearing a mail shirt constructed of metal plates sewn on to a tunic (pl. IX, 1).<sup>4</sup> This partially armoured horseman, whose only offensive weapon was a pike (the primary weapon of the later *κοντοφόροι*), was really a mounted infantryman, like the preceding *ἱπποτοξότης*. With the introduction of a hybrid cavalryman in the reign of Sennacherib (705–681), whose arsenal included the bow as well as the pike,

<sup>1</sup> S. P. Tolstov, *Drevnij Choresm* (Moscow, 1948)—summarized by R. Ghirshman, *Artibus Asiae* 16 (1953), 209–37, 292–319 [my references are to this summary]—properly stresses the Assyrian influence.

<sup>2</sup> E. A. W. Budge, *Assyrian Sculptures in the British Museum* (London, 1914), pls. xv, xxiv.

<sup>3</sup> E. Darko, *Byzantion* 10 (1938), 443 ff.; also

*Byzantion* 18 (1948), 85 ff. On the nomadic riders, engaged in the ‘Parthian shot’, see Budge, o.c., pl. xxiv; T. Sulimirski, *Revue internationale d’histoire militaire* 3 (1952), 450 ff.; on the ‘Parthian shot’ see M. Rostovtzeff, *AJA* 47 (1943), 174 ff.

<sup>4</sup> R. D. Barnett and M. Falkner, *The Sculptures of Tiglath-Pileser III* (London, 1962), pls. XIV, LXVII.

a diversified, mobile, and partially armoured offensive force—which would be effective from a distance or in hand-to-hand combat—had been achieved in Assyria (pl. IX, 2).<sup>5</sup>

Cavalry equipment brought to light by excavations around the Aral Sea, begun in the 1930's, indicates that similar experimentation with cavalry tactics and armour was undertaken simultaneously by the Massageto-Chorasmian peoples of central Asia. Unfortunately, neither the precise nature of each phase in the development nor the exact relationship of this experimentation to contemporary developments elsewhere can be discerned in the archaeological record, but it is clear that a distinctive Chorasmian cavalryman evolved by the sixth century B.C. According to S. P. Tolstov and B. Rubin, this cavalryman was the prototype cataphract (κατάφρακτος — from κατάφράσσω, to cover with mail): i.e. a partially armoured rider, wearing a coat of mail and perhaps a metal helmet, on a horse whose head and flanks were partially protected by metal plates.<sup>6</sup> The offensive weapons of the Chorasmian cataphracts and the Assyrian 'hybrid' horseman were identical (bow and pike): both could fire arrows from a distance and then charge with their pikes to engage infantry or cavalry at close quarters. They differed, however, in one major respect: the Assyrians, as far as we know, did not attempt to protect the horse as well as the rider.

To military strategists the cataphract may have seemed a desirable, even necessary, extension of Assyrian technique, but the additional weight imposed on horse and rider doubtless created tactical difficulties. To support the rider protected by heavy metal armour and to permit mobility in battle a strong, yet agile, horse was required. F. Hančar and others have argued that the requisite cavalry horse was first bred systematically in Turan—the portion of Western Asia north of Iran—which Darko considered the original home of the mounted archer. According to Hančar (following V. O. Vitt), the physical characteristics of these Turanian horses can be discerned in the sixty-nine Pazyryk horses, completely preserved in solid ice, discovered in the Altai Mountains on the Eastern border of Turan. The largest of the Pazyryk horses (148–150 cm. in height) must have been quite powerful: long, high neck; narrow forehead; short, sturdy trunk; solid knees with well-developed joints. These horses obviously would be suitable for cavalry warfare and could support a heavy-armoured rider. Whether the Pazyryk horse reflects precisely the physical characteristics of the earlier Turanian horse, however, cannot be decided; from the evidence we may conclude only that a superior cavalry horse was available in Turan at least by the fifth century B.C. (when some of the Pazyryk horses were 'deposited').<sup>7</sup>

The Turanian horse or one of its descendants probably was known to the Assyrians. Indeed, an extraordinarily powerful specimen depicted on the reliefs of Tiglath-Pileser III—muscular body; small head; flowing mane and tail; rather thin legs, but strong knees—is remarkably similar to the Pazyryk horse (see pl. IX, 2).<sup>8</sup> From whom and by what methods the Assyrians acquired the larger cavalry horse cannot be determined, but it is quite clear that they had secured suitable mounts for their heavy-armoured cavalry and thus were able to solve the problems of the weight/power ratio by the middle of the eighth century B.C. At about the same time (certainly by the sixth century) the Chorasmians, who inhabited the western extremity of Turan, also must have obtained large cavalry horses.

That the armoured cavalryman needed both a saddle and stirrups for maximum stability and effectiveness is undeniable. It is equally clear, however, that ancient armoured horsemen could and did participate in major battles without the benefit of either a saddle or stirrups. The saddle doubtless would have contributed to the rider's manoeuvrability in battle, but an expert horseman, even if he wore protective armour, could maintain his balance by gripping the reins firmly and by the constant application of knee-pressure to the

<sup>5</sup> S. Smith, *Assyrian Sculptures in the British Museum* (London, 1938), pls. XXXIX, XLIII, XLVI.

<sup>6</sup> Tolstov, loc. cit.; B. Rubin, *Historia* 4 (1955), 264–83. This definition of cataphract is derived from the first descriptions of Massagetae mailed horsemen in Hdt. I, 215 and Strabo 11, 8, 6; cf. Polyb. 30, 25, 9. As we shall see, however, the word cataphract was later applied to cavalrymen who were not outfitted in the Chorasmian manner.

<sup>7</sup> F. Hančar, *Das Pferd in prähistorischer und früher historischer Zeit* (Wiener Beiträge zur Kulturgeschichte und Linguistik, XI [1955]), 355 ff.; for a

description of the Pazyryk horses see 366 ff. and pl. XII. From this horse the Median horses described by Hdt. 3, 106 and Strabo 11, 13, 7 (525) and the 'heavenly horses of Ferghana' may have been descended: W. Ridgeway, *The Origin and Influence of the Thoroughbred Horse* (Cambridge, 1905), 192 ff.; W. W. Tarn, *Hellenistic Military and Naval Developments* (Cambridge, 1930), 78 ff.; Rubin, o.c. (n. 6), 268–9; A. Waley, *History Today* 5, no. 2 (February, 1955), 95 ff.

<sup>8</sup> Barnett-Falkner, o.c. (n. 4), pl. LXVII.

horse's flanks. The Assyrian horseman—who are depicted riding bareback or sitting on a saddle-cloth—probably employed this compensatory technique.<sup>9</sup> Similarly, the development of the Assyrian/Chorasmian cavalry equipment and tactics demonstrably was not precluded or necessarily impeded by lack of stirrups, which were not in use anywhere before the first century A.D.<sup>10</sup> In short, the technological capabilities of the Assyrians and Chorasmians were sufficient to permit the gradual refinement of cavalry equipment and techniques.

The military significance of these innovations was both immediate and enduring, for the complementary efforts of the Assyrians and Chorasmians to master cavalry warfare—necessitated by the presence of nomadic cavalry on their borders—initiated a variety of cavalry types which served as models for subsequent cavalry experimentation in the East. By the third century B.C. most of the eastern armies included units of light cavalry (ἱπποτοξόται), but relatively few states in the East or West attempted to imitate the Assyrian and Chorasmian experiments with mailed cavalry.<sup>11</sup> It is especially noteworthy, therefore, that the Romans, who relied primarily on legionary *pedites* during the Republic, began in the early Empire to experiment with cavalry equipment and tactics and finally created units of mailed cavalry quite similar to the Assyrian and Chorasmian models.

## B

Isolated from eastern military developments in the early Republic, the Romans were not challenged by mailed cavalry until their war with Antiochus III. Despite their inexperience, the Romans in the battle at Magnesia were neither awed nor overwhelmed by Antiochus' 3,000 cataphracts—on the contrary, the cataphracts proved ineffective against the legions.<sup>12</sup> That the Romans would quickly adopt the equipment and tactics of their defeated opponents, therefore, seems most unlikely. Yet, in the early second century (following Magnesia?) the Roman cavalry was thoroughly remodelled. According to Polybius (6, 25, 3), writing *ca.* 150 B.C., the Roman cavalry of his day differed from predecessors in equipment and apparently in tactics : ὁ δὲ καθοπλισμὸς τῶν ἱππέων νῦν μέν ἔστι παραπλήσιος τῷ τῶν Ἐλλήνων· τὸ δὲ παλαιὸν πρῶτον θώρακας οὐκ εἶχον, ἀλλ' ἐν περιζώμασιν ἐκινδύνευον. . . . Moreover, he points out that the Romans had recently adopted Greek lances (δόρατα = *hastae*) and shields. Quite clearly, the primary influence here was Greek; the renovation probably was not stimulated by Roman contact with Syrian cataphracts in 189. Indeed, Polybius seems to describe heavy cavalry not unlike Alexander's Companions, who wore a leather cuirass and carried as their offensive weapon a short thrusting spear (*xyston*).<sup>13</sup> As the *hasta* certainly resembles the *xyston* in purpose, if not in size, we may infer that the tactics employed by Alexander's Companions and the new Roman cavalry were quite similar. Whether the Roman θώραξ, on the other hand, was constructed of leather or metal is not clear. F. W. Walbank has suggested that this θώραξ 'may be the chain-mail breast-plate (*lorica hamata*) worn by the first class (*pedites*: see 6, 23, 15), perhaps over a leather jerkin'.<sup>14</sup> The evidence, in my judgment, is not conclusive. Indeed, that the two breastplates may not have been identical is suggested by the use of the adjective ἀλυσιδωτός in 6, 23, 15, which does not appear in 6, 25 (θώραξ alone).

Unfortunately we do not know whether the Romans at this time possessed horses suitable for mailed cavalry warfare. Our first secure piece of information regarding the

<sup>9</sup> On the introduction of the saddle see W. Gunther, 'Sattel', *Reallexikon der Vorgeschichte* 11 (1927-8), 213.

<sup>10</sup> Stirrups of the first century A.D. in Southern Russia: E. H. Minns, *Scythians and Greeks* (Cambridge, 1913), 250 ff.; M. Rostovtzeff, *Iranians and Greeks in Southern Russia* (Oxford, 1922), 121, 130, pl. xxix; A. D. H. Bivar, *Oriental Art* n. s. 1 (1955), 61, who rejects the first century B.C. date assigned by Minns and Rostovtzeff. Han Dynasty stirrup: Bivar 62. Indian 'big toe' strap: R. Lefebvre des Noëttes, *L'Attelage: le cheval de selle à travers les âges* (Paris 1931), 231, pls. 261, 263.

<sup>11</sup> The Persians evidently were especially fond of cataphracts, which were employed in the armies of Xerxes (Hdt. 7, 84), Cyrus (Xenophon, *Anab.* 1, 8, 7;

*Cyr.* 6, 4, 1; 7, 1, 2) and Darius (Curtius Rufus 3, 11, 5; 4, 9, 3).

<sup>12</sup> According to Livy (35, 48, 3) Antiochus' army included 'equitem innumerabilem . . . partim loricatos, quos cataphractos vocant, partim sagittis ex equo utentes et, a quo nihil satis tecti sit, averso refugientes equo certius figentes'. On the cataphracts at Magnesia see Livy 37, 42, 1; these units were also used by Antiochus IV, cp. Polyb. 30, 25, 9.

<sup>13</sup> On the Companions see Tarn, *o.c.* (n. 7), 71 ff.

<sup>14</sup> F. W. Walbank, *A Historical Commentary on Polybius*, I (Oxford, 1957), 708. For other references to θώρακες worn by cavalry see Xenophon, *Cyr.* 8, 8, 22; *Pausanias* 1, 21, 6 (not metal); *Suda*, s. v. θώραξ = Arrian fr. 20; Julian, *Or.* 1, 37 C-D.

supply of Roman cavalry horses is contained in Germanicus' complaint that Gaul had been exhausted by supplying horses (Tacitus, *Ann.* 2, 5). From this we may infer that in A.D. 16 Gaul was a principal western source of cavalry horses, but it is not at all certain that these Gallic horses were sufficiently large to accommodate mailed riders.<sup>15</sup> Thus, the relationship between horse-supply and cavalry development during the Republic cannot be delineated satisfactorily.

The second recorded Roman encounter with eastern cataphracts, near Tigranocerta on 6 October 69 B.C., demonstrated once again the ineffectiveness of these troops against the legions.<sup>16</sup> Some scholars have argued, however, that cataphract tactics were vindicated fifteen years later at Carrhae.<sup>17</sup> Of the ancient commentators on the battle of Carrhae only Plutarch (*Crassus* 24-25) and Dio Cassius (40, 22 ff.) describe the armament and tactics of the Parthian mailed cavalry. Plutarch, who provides much more detail than Dio, says that the Parthian cavalrymen wore steel helmets and breastplates (τοῦ Μαργιανοῦ σιδήρου) and were equipped with the κοντός (long pike); their horses were clad in bronze and steel plates.<sup>18</sup> The Parthians, therefore, employed mailed cavalry similar to the Chorasmian prototype.

The role of the cataphracts in the battle—which was fought on a wide, level plain, ideally suited for cavalry manoeuvres—has been variously assessed, but I doubt that they were decisive. Certainly the battle turned on the cavalry engagement, but this was lost by the Roman response to the Parthian ruse and the subsequent tactical errors of Publius. Defeated in the initial skirmish, Publius chose limited withdrawal rather than flight and unwisely took up an indefensible position, where the Romans were vulnerable to frontal assault and were completely exposed to Parthian mounted archers.<sup>19</sup> It was here, and not in the initial skirmish, that the Romans were annihilated. While the Parthian *charge à fond* described by Dio may have been effective, there is no reason to believe that the Romans could have resisted indefinitely an attack by archers. In short, the Parthian feint and Roman mistakes, not the technological superiority or tactics of Parthian cataphracts, defeated the Romans.<sup>20</sup>

The disaster at Carrhae served to demonstrate, however, the vulnerability of the legions to cavalry attack and the necessity of strengthening the Roman cavalry, which had been neglected since the military reforms of Marius. In response to the cavalry threat, Julius Caesar a few years before the battle of Carrhae had added Gallic and German *equites*, together with Cretan and Numidian archers (*sagittarii*), to his legions in Gaul; in the Civil War he introduced mixed units of *equites* and *antesignani* (élite infantrymen), which were employed against Pompeius' cavalry.<sup>21</sup> Caesar's successors, however, evidently abandoned the *antesignani* and relied exclusively on auxiliary *equites* to repel cavalry attack. Doubtless among military strategists the invincibility of the legions remained an article of faith—a dogma which precluded for some time the establishment of a regular Roman cavalry. This

<sup>15</sup> Cf. Hančar, o.c. (n. 7), 370 ff.

<sup>16</sup> Plutarch, *Luc.* 26, 6; 28, 1-7; Appian, *Mith.* 85 (which is identical with Plutarch, except that cataphracts are never mentioned); cf. Sallust, *Hist.* frs. 64-66; Eutropius 6, 9; Festus, *Brev.* 15; commentary by J. van Ooteghem, *L. Licinius Lucullus* (*Mémoires Acad. Royale de Belgique* 33, fasc. 4 [1959]), 117 ff. Sallust (fr. 65) says that the horses, as well as the riders, were armoured. Eutropius and Festus, employing contemporary terminology, refer to the Armenian mailed horsemen as *clibanarii*. On the tactics employed at Tigranocerta see now E. Gabba, 'Sulle influenze reciproche degli ordinamenti militari dei Parti e dei Romani,' in *La Persia e il mondo Greco-Romano* (Accademia Nazionale dei Lincei, Roma, 1965), 51-73. Professor Gabba's approach to the subject of mailed cavalry and his conclusions differ from those enunciated in this paper and will be noted.

<sup>17</sup> For example, Rubin, o.c. (n. 6), 273 ff.

<sup>18</sup> But cf. Dio 40, 15, 2, who refers to ιπποτοξόται and κοντοφόροι, τὰ πολλὰ κατάφρακτοι (i.e. for the most part armoured). Dio may have been thinking of contemporary Roman κοντοφόροι = *contarii* or *cata-phractarii*, who did not ride armoured horses.

<sup>19</sup> The ιπποτοξόται evidently operated in conjunction with the cataphracts: Dio 40, 15, 2; Plutarch, *Crassus* 25, 4-5. Gabba, in fact, suggests (o.c., n. 16, 67) that the cataphracts could not fight effectively without the support of mounted archers.

<sup>20</sup> Tarn, o.c. (n. 7), 89 ff., believed that the battle was won by the Parthian mounted archers, whose reserve supply of arrows was carried by a special camel corps. The best modern commentary on the battle is still A. Garzetti, 'M. Licinio Crasso', *Athenaeum* n.s. 22-23 (1944-5), 45 ff. Gabba, o.c. (n. 16), 53 ff., 62 ff., 73, argues that the débâcle at Carrhae stimulated 'un aggiornamento del sistema romano di combattimento' (p. 69).

<sup>21</sup> Gallic cavalry: *BG* 1, 42, 5; *BAfr.* 6, 3. Germans: *BG* 7, 13, 1-2; 7, 65, 4-5. *Sagittarii*: *BG* 2, 7, 1-2. *Antesignani*: *BC* 3, 75, 5; 3, 84, 3; cp. *BG* 5, 16-17 (*antesignani*?) against chariots and British cavalry; A. von Domaszewski, *RE* I (1894), 2355-6; E. Sander, *Hist. Zeitschr.* 179 (1955), 275 ff.; M. J. V. Bell, *Historia* 14 (1965), 411 ff.

resistance to change was not a fatal error, however, for effective cavalry units could be recruited as needed from the provinces. In fact, this dependence upon non-Italians and even non-Westerners was inadvertently a positive advantage: through the enlistment of *equites* equipped with superior weapons and trained in novel tactics the Roman army became more flexible. Such diversification was essential if the Romans were to meet the accelerating pressures on the frontiers—a menace significantly intensified by the arrival of the Sarmatians.

Driven from their home between the Don and Dnieper in the fourth century, the Sarmatian tribes began their long migration to the west and by the beginning of the first century B.C. reached the Danube.<sup>22</sup> In this region the Sarmatians soon acquired a reputation as expert cavalrymen, a talent celebrated in monuments and tumuli of the migration period.<sup>23</sup> In part, their military success may be attributed to improved weapons—e.g. the bow reinforced with bone inlay, introduced by the Huns; the heavy lance, which Roman writers frequently denominate *contus Sarmaticus*.<sup>24</sup> But Sarmatian cavalry proficiency was not unique among the peoples of the Steppes—their perfection of cavalry equipment and techniques was facilitated by common nomadic heritage of violence, migration, and necessary improvisation. On the other hand, the Sarmatian development of heavy cavalry, which the Scythians and other steppe peoples did not have, probably was stimulated specifically by their contact with Chorasmian cataphract tactics—i.e. when the Chorasmians overran the Sarmatian territory in the fourth century B.C.<sup>25</sup>

The first recorded encounter between Rome and the Sarmatian tribes occurred in 88 B.C., but a decisive confrontation was delayed for more than a century—during which period pressure on the Moesian frontier was relentless, undeterred by Roman punitive expeditions. The threat was realized late in the reign of Nero with the arrival of a new Sarmatian tribe, the Roxolani, who settled in the Danubian region and conducted raids into Moesia in A.D. 62 and again in 69.<sup>26</sup> The Roman response to this latter incursion is described by Tacitus (*Hist.* 1, 79), who records that the *legio III Gallica* annihilated the Sarmatians and drove them into the marshes. In his account of the battle, or rather the rout, we have the first reference to the distinctive defensive armour worn by some, if not all, of the 9,000 Roxolani horsemen—‘*tegimen* [probably a long coat], *ferreis lamminis aut praeduro corio consertum*’. Their offensive weapons were the sword and pike (*contus*), and with favourable weather conditions and on level ground Tacitus considered their tactics, apparently *charge à fond*, dangerously effective: ‘*ubi per turmas adveneret, vix ulla acies obstiterat*’. The Sarmatian defeat is attributed by Tacitus to the ‘*saevitia hiemis*’, but he does recognize two intrinsic weaknesses of their mailed cavalry: (1) when the rider was thrown from his horse the weight of the armour rendered him defenceless, and (2) failure to carry a shield made the rider especially vulnerable in hand-to-hand fighting. As these liabilities obtained irrespective of weather conditions, one may question Tacitus’ favourable judgment of Sarmatian effectiveness.<sup>27</sup>

Nonetheless, Roman respect for their adversaries was justified, for Sarmatian raids increased in intensity and frequency after A.D. 69. The Sarmatians, of course, were not the only restive tribe in the Danubian region; the Dacians also coveted Roman territory and from time to time threatened to detach Moesia from the Empire. Thus, the alliance of Sarmatians and Dacians, probably effected in the reign of Domitian, constituted a clear and present danger to Roman control of Moesia. The Romans responded quickly and, after a series of reverses, Domitian personally took charge of Roman troops in the area. His

<sup>22</sup> On the Sarmatae in general see J. Harmatta, *Studies on the History of the Sarmatians* (Budapest, 1950); T. Sulimirski, ‘The Forgotten Sarmatians’, in *Vanished Civilizations*, ed. E. Bacon (London, 1963), 279–98.

<sup>23</sup> For example in the Bosporan kingdom: Sulimirski, *ibid.* 284 (pl. 9), 289; Rostovtzeff, *o.c.* (n. 10), 121, 130, pl. XXIX.

<sup>24</sup> Bow: Sulimirski, *o.c.* (n. 22), 291; but cf. W. McLeod, *Phoenix* 19 (1965), 2 ff. *Contus Sarmaticus*: Valerius Flaccus 6, 161–2, 256–8; Statius, *Achill.* 2, 132–4; Silius Italicus, *Punica* 15, 683–5; on these see R. Syme, *CQ* 23 (1929), 129 ff.

<sup>25</sup> Sulimirski, *o.c.* (n. 22), 289 ff.

<sup>26</sup> Raid (migration?) of 62: *ILS* 986; of 69: Tacitus, *Hist.* 1, 79; another raid across the Danube in 70 is reported by Josephus, *BJ* 7, 4, 3.

<sup>27</sup> Strabo’s estimate (7, 3, 17) of the Roxolani—that they were ineffective against a well-ordered and well-armed phalanx—and Pausanias’ remarks (1, 21, 5–6) regarding the Σαυροπεπτικός θώραξ (supposedly made from mares’ hoofs) are, however, misleading: see Harmatta, *o.c.* (n. 22), 48.

presence did not ensure success. Not even perfunctory praise by Roman poets could obscure his failure—the campaign ended not in a resounding Roman victory but with the purchase of peace and future protection from the Dacians and their allies.<sup>28</sup>

To attribute this and other Roman 'defeats' to the superiority of Sarmatian or Dacian cavalry would be an oversimplification—*inter alia* topography, the skill of barbarian archers, Roman mistakes, and accident also contributed. Yet the Sarmatians and Dacians did reveal once again a basic weakness in the Roman army—their inadequate cavalry. Under the Flavians military strategists attempted to remedy this deficiency; the introduction of units of *sagittaria equitata* is one manifestation of their concern.

Auxiliary archers (*sagittarii*), probably commanded by native chiefs, were enrolled in the Roman army after the Second Punic War and were used increasingly in the late Republic and early Empire. Mounted archers, on the other hand, appear first in the period of the civil wars, when 200 Syrian ἵπποτοξόται were added to Pompey's army (Caesar, *BC* 3, 4–5). This development was not pursued by the Julio-Claudians, however, and regular units of mounted archers evidently were not created until the Flavian period. The names of the Flavian units—*ala I Augusta Ituraeorum sagittaria*, *ala III Augusta Thracum sagittaria*, *cohors I Ascalonitarum sagittaria*—clearly indicate that the East was still the home of the mounted archer and the principal recruiting area for the Roman archer-cavalry.<sup>29</sup> Moreover, the use of these mounted archers on the Syrian and Danubian frontiers suggests that the Romans were beginning to suffer defeat—e.g. in Moesia—by well-trained, diversified enemy cavalry and were responding in kind.

In his account of the Roman army under Vespasian, Josephus (*BJ* 3, 5, 5) describes another contemporary cavalry innovation—the *contarius* (=κοντοφόρος).<sup>30</sup> The word *contarius* is not used at this time, but Josephus' list of cavalry weapons includes those commonly associated with the *contarii*—large sword (μάχαιρα μακρά), darts (ἄκοντες), and above all the heavy pike (κοντός). They evidently did not wear metal armour, although the κράνη and θώρακες ὁμοίως τοῖς πεζοῖς mentioned by Josephus could have been constructed either of metal or leather. Whether regular units of *contarii* were created by Vespasian cannot be determined, but the apparently simultaneous adoption of mounted archers and pikemen indicates that the Romans were beginning to experiment with new cavalry weapons and techniques—a development which culminated in the reigns of Trajan and Hadrian.

Doubtless the primary stimuli to cavalry development were the increasing pressure on the Moesian frontier and the omnipresent threat of combined Dacian and Sarmatian invasion. Throughout the first century A.D. the Danubian frontier-line remained virtually unaltered; invasions, of course, were repulsed as swiftly as possible, but the Romans rarely attempted to pursue the invaders across the frontier or to annex 'barbarian' territory. In 101, however, Trajan abandoned this traditional policy of measured response and personally conducted a campaign against Decebalus and the Dacians across the Danube. The reasons for Trajan's decision to invade Dacia are not certain and need not concern us here; for our purposes the important consideration is whether one can discern in the sources for this campaign any evidence of cavalry innovation.<sup>31</sup> To answer this question an analysis of certain features of the Tropaeum Traiani at Adamklissi, erected to commemorate the first Dacian campaign (A.D. 101–102), is essential.

The date, style and purpose of the Tropaeum have been variously assessed, but most scholars now agree that the monument is homogeneous—i.e. the elements of the Tropaeum itself and the cenotaph some 200 metres from the Tropaeum were designed by the same person or persons—and accept the view, frequently challenged, that it was erected at the

<sup>28</sup> Martial 9, 101 mentions three victories over the Sarmatians—'cornua Sarmatici ter perfida contudit Histri'—and in 7, 6 celebrates Domitian's 'victory' of A.D. 92; see also Dio 67, 7, 4; Suet., *Dom.* 6, 1 (campaign of 84). On the Dacian wars see E. T. Salmon, *TAPhA* 67 (1936), 83 ff.

<sup>29</sup> *CIL* xvi, Dipl. 35, 42, 57, 77; see H. van de Weerd and P. Lambrechts, 'Note sur les corps d'Archers au Haut Empire,' *Laureae Aquincenses*

*Memoriae V. Kusznitsky dicatae* (1938), 229–42 = F. Altheim and R. Stiehl, *Die Araber in der alten Welt* I (1964), 661–77; Gabba, o.c. (n. 16), 69 ff.

<sup>30</sup> See Daremberg/Saglio, *Dictionnaire des Antiquités Grecques et Romaines* I (1887), s.v. 'contus' (R. Cagnat).

<sup>31</sup> On Trajan's decision to invade see Dio 68, 6, 1; Salmon, o.c. (n. 28), 83 ff.; F. A. Lepper, *Trajan's Parthian War* (Oxford, 1948), 106 ff.

end of Trajan's Dacian campaigns.<sup>32</sup> One feature of the Tropaeum, however, has not been explained satisfactorily—the depiction throughout the monument of armoured Roman or auxiliary *equites*, hitherto not found in the Roman army.

In metopes 1 and 2, for example, each of the *equites*, apparently protected by a mail coat extending to the thighs, carries a long pike, probably a *contus*, in his right hand (at rest, parallel with the ground) and with his left arm supports an oblong shield, which is attached by a shoulder strap (pl. x, 1). In metope 4 another of these cavalrymen is seen in action against Dacian infantrymen—with the pike, raised and directed by his right hand, he is about to eliminate an unresisting, prostrate opponent.<sup>33</sup> His weapon (*contus*) and tactics clearly resemble those regularly associated with the *contarii*, but should we conclude that the Tropaeum figures represent units of mailed *contarii* introduced by Trajan? To reconstruct events or to identify weapons from artistic evidence alone is always dangerous. In this instance we cannot preclude the possibility that the coats of mail are the result of artistic misconception or invention. Indeed, the fact that both *equites* and *pedites* wear identical armour suggests that the artist or artists at the outset employed conventional distinctions—i.e. the Romans uniformly wear armour, their Dacian opponents do not. The viewer, therefore, would be able to distinguish at a glance the powerful, victorious Romans and their defenceless, defeated opponents. As the Tropaeum probably was intended not only to commemorate for ever the victory of Trajan but also to serve as a reminder to local residents of the continuing Roman presence, such an artistic convention, obviously not necessarily accurate, may well have been employed. It is entirely possible, therefore, that these figures are not what they seem to be—i.e. mailed *contarii*.

This observation is strengthened somewhat by the fact that members of *ala I Ulpia contariorum miliaria*, the only unit of *contarii* definitely created by Trajan, evidently were not armoured.<sup>34</sup> Whether the Tropaeum *contarii* were members of this *ala*, however, simply cannot be decided. More important is the support provided by Arrian (*Tactica* 4), who confirms the existence of *contarii* under Hadrian, but does not indicate that they were armoured. Admittedly, neither of these bits of information proves conclusively that the Tropaeum figures are merely unarmoured *contarii*. On the other hand, in view of Arrian's testimony, the absence of corroborative data, and possible 'inaccuracies' of the Tropaeum itself, it is equally clear that the metopes of the Tropaeum cannot be adduced as indisputable evidence that mailed cavalry were introduced into the Roman army by Trajan.

The principal credit for this major cavalry innovation must be assigned to Hadrian, who created the first regular unit of auxiliary mailed cavalry, the *ala I Gallorum et Pannonicorum catafractata* (*CIL* xi, 5632). Unfortunately, information regarding the organization and employment of this *ala* is meagre: it may have been formed by combining two existing *alae*, *I Claudia Gallorum* and *I Pannonicorum*, which were stationed in Moesia in A.D. 99 and 105 respectively and evidently disappeared thereafter; under Hadrian it was commanded for a time by M. Maenius Agrippa (*CIL* xi, 5632); under Antoninus Pius members of this *ala* upon discharge were granted *civitas* (*CIL* iii, Diploma XLIV).<sup>35</sup> Even less clear is the precise meaning of *catafractata*—how were the members of this *ala* 'armoured'? Some have assumed that they were outfitted like the mailed horsemen on Trajan's Column—i.e. both riders and horses were encased in *lorica plumata* (only the face and fingers of the rider and the tail, nostrils, and eyes of the horse remain unprotected—pl. x, 2).<sup>36</sup> This assumption, in my judgment, is neither provable nor probable. The identity of the Column horsemen, a

<sup>32</sup> G. G. Tocilescu, *Das Monument von Adamklissi, Tropaeum Traiani* (Vienna, 1895); G. Charles-Picard, *Les Trophées romains* (*Bibliothèque des écoles françaises d'Athènes et de Rome*, fasc. 187, 1957), 391 ff., with a useful bibliography of the controversy, 391, n. 1; F. B. Florescu, *Monumentul de la Adamklissi, Tropaeum Traiani* (Bucharest, 1961), in Rumanian, with a very brief French summary appended. All three accept the Trajanic date.

<sup>33</sup> Cf. metope 6.

<sup>34</sup> Units of *ala I Ulpia*: *CIL* iii, 4183, 4278, 4341, 4359–4362, 4369, 4370, 4378, 4379; viii, 21620. That members of this *ala* were not armoured is indicated by the stele of Tur(?) Martinus at Arbal (*CIL* viii, 9291; see Daremberg-Saglio, loc. cit.):

in the relief above the inscription an unarmoured *contarius*, presumably the deceased, is depicted. It is not clear whether members of *ala Longiniana*, which was stationed in Germania inferior, were armoured: E. Espérandieu, *Recueil général des bas-reliefs, statues, et bustes de la Gaule romaine* viii (1922), 6292 = *CIL* xiii, 8095; cf. 6282, 6289; C. Cichorius s.v. 'ala', *RE* i (1884), 1250.

<sup>35</sup> Cichorius, *ibid.* 1245–6. Gabba, o.c. (n. 16), 67, suggests that this *ala* may have been created at the time of Trajan's Parthian war—but the evidence, in my judgment, is not conclusive.

<sup>36</sup> On the mailed figures of the Column see C. Cichorius, *Die Reliefs der Trajanssäule* (Berlin, 1896) i, pls. xxxi, xxxvii; ii, 14, 150 ff., 179 ff.

problem which has long exercised scholars' imaginations, does not concern us here. It will suffice merely to point out that these horsemen are not Romans or Roman auxiliaries—they, in fact, are pursued across the scenes (xxxii, xxxvii) by unarmoured auxiliary cavalry—and thus are not connected in any way with the *ala catafractata*. Moreover, although it is true that the Romans in the past had adopted foreign equipment and techniques without hesitation and may well have been impressed, even awed, by enemy armoured cavalry, there is no compelling reason to believe that the Column horsemen (whose authenticity may be doubted) influenced Roman cavalry development or that both riders and horses in the *ala catafractata* were completely armoured. On the contrary, this *ala* may have been simply a unit of mailed *contarii*, the product of gradual experimentation within the Roman military system. This much is certain: under Hadrian at least one unit of mailed cavalry was introduced into the Roman army—a tribute both to the success of barbarian military ingenuity and to the Roman capacity, augmented since the reign of Vespasian, for relevant cavalry innovation.

## C

After Antoninus Pius' grant of *civitas* to members of the *ala I Gallorum et Pannoniorum* we hear nothing further of Roman *alae catafractae* or *cataphractarii* until the third century.<sup>37</sup> In view of previous cavalry development and the adoption of mailed cavalry by Hadrian this disappearance is rather surprising. There is one piece of evidence, however, which indicates that mailed horsemen still fought for Rome under Marcus Aurelius. Throughout the reliefs of the Column of Marcus Aurelius Roman *equites*, equipped with pikes, are depicted wearing coats of mail (pl. xi, 1).<sup>38</sup> Significantly, not one of the horses is armoured. As this monument purportedly depicts the personnel involved in major campaigns of Marcus Aurelius (A.D. 172–175), we may infer that the contemporary Roman cavalry included mailed, but not totally armoured, units. The Romans may have called these units *alae cataphractae* or *cataphractarii*, but they evidently were not armoured like the earlier Chorasmian, Syrian, and Armenian cataphracts—they were in fact mailed *contarii*. In short, the Romans adopted the vocabulary of eastern cataphract warfare, but modified the armour to meet Roman requirements.

That the cavalry became a prominent, even predominant, part of the Roman army in the third century is well known. The chief architect of the new cavalry corps evidently was Gallienus, who created a highly mobile force which could match most of the tactics employed by Rome's enemies. Comprising the nucleus of this augmented cavalry were the *equites Dalmatae*, an élite force of unarmoured horsemen, whose military prowess was universally admired by later writers.<sup>39</sup> The *equites Dalmatae*, however, did not entirely displace the mailed cavalry—on the contrary, the number of *cataphractarii* apparently increased. The following units, attested by several inscriptions, were in service during the late third and fourth centuries: *equites catafractarii Pictavenses*; *equites catafractarii Ambianenses*; and several *numeri catafractariorum*.<sup>40</sup> On three of the stelae (*CIL* XIII, 3493, 3495, 6238) dedicated to members of these cataphract units, the cavalry uniform and equipment worn by the deceased are depicted: in none of these reliefs does the equestrian wear full-scale armour or ride an armoured horse. Indeed, the horseman of *CIL* XIII, 6238 is identical with

<sup>37</sup> Of the third-century units the first, and perhaps best known, is the *ala nova firma miliaria catafractaria Philippiana*, which was recruited in the eastern provinces in A.D. 234, was transferred to the west under Maximinus and participated in campaigns against the Alamanni and Germans (235–6), and remained in service during the reign of Philip the Arab: *CIL* III, 99 = *ILS* 2771; III, 10307 = *ILS* 2540; XIII, 7323; Cichorius, o.c. (n. 34), 1236. According to Herodian 8, 1, 3, Maximinus re-entered Italy with several units (*turmae? alae?*) of cataphracts—αἱ τῶν καταφράκτων ἵππεων ἵπαι—which fought in conjunction with Mauretanian archers.

<sup>38</sup> C. Caprino et al., *La Colonna di Marco Aurelio* (Rome, 1955): from the campaign of 172–3, fig. 56 (XLIV); from the campaign of 174–5, figs. 72 (LVII),

78–9 (LXXXIII), 99 (LXXXIX), 110 (XCII), 118 (XCIX), 128 (CIVII); see also G. Becatti, *Colonna di Marco Aurelio* (Milan, 1957), figs. 27, 33, 46, 49, 57.

<sup>39</sup> On Gallienus' reform and the *equites Dalmatae*: Cedrenos I, p. 494 (Bonn); R. Grosse, *Römische Militärgeschichte* (Berlin, 1920), 15 ff.; A. Alfoldi, *CAH* XII, 216 ff.

<sup>40</sup> *Pictavenses*: *CIL* III, 14406a; *Ambianenses* (the name is supplied by the *Notitia Dignitatum*): *CIL* XIII, 3493 = Espérandieu, o.c. (n. 34), v, 3941; *CIL* XIII, 3495 = Espérandieu v, 3940; *numeri*: *Notizie degli Scavi* (1890), 343, nr. 9 = D. Hoffmann, *Museum Helveticum* 20 (1963), 29; *CIL* v, 6784; XIII, 1848; XIII, 6238 = Espérandieu VIII, 6044; on *numeri* in general see H. T. Rowell, 'numerus,' *RE* 17, 2 (1937), 1327 ff., 2538 ff.



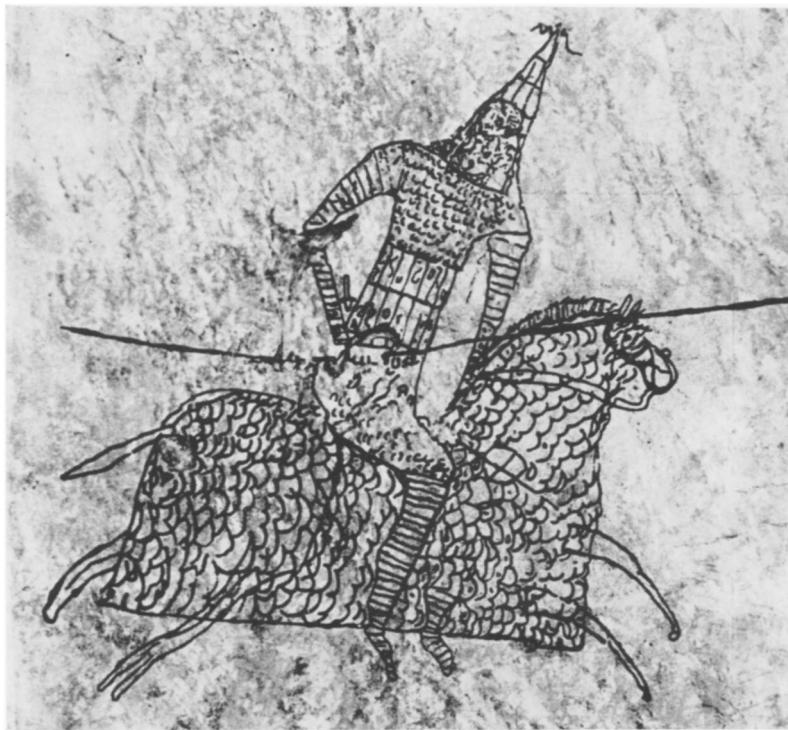
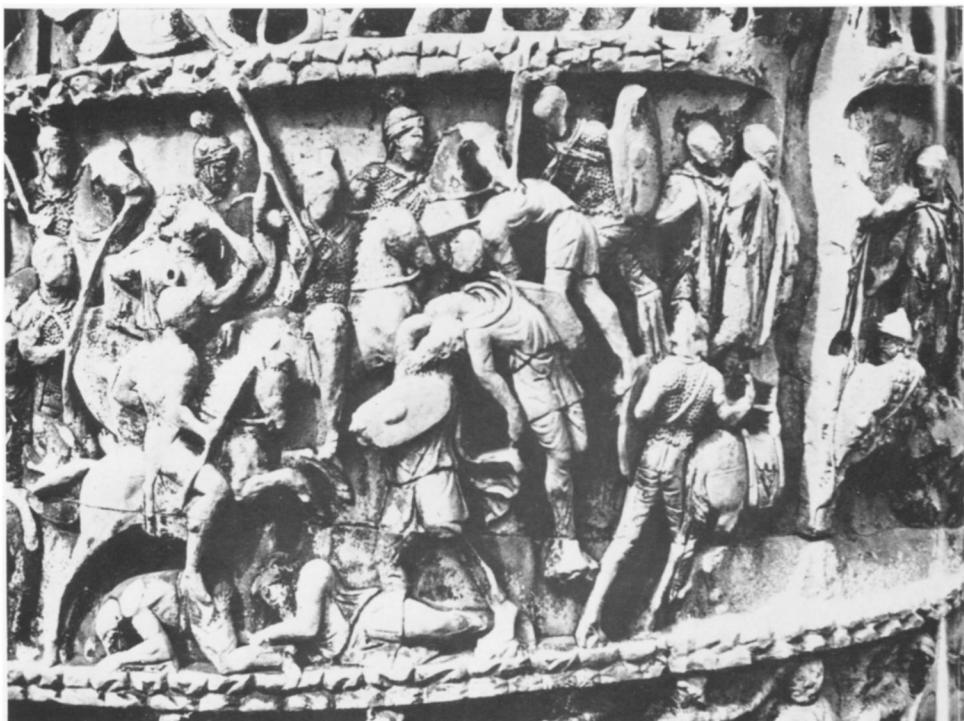
(1) NIMRUD, SW. PALACE : ASSYRIAN CAVALRY OF TIGLATH-PILESER III (745-727 B.C.) PURSUING A URARTIAN (?).  
 (2) QUYUNJIG, SW. PALACE : MOUNTED BODYGUARD OF SENNACHERIB (705-681 B.C.), 'HYBRID CAVALRYMEN' (see pp. 161 f.)

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(1) ADAMKLISI, TROPAEUM TRAIANI: 'CONTARIUS' IN TRAJAN'S ARMY, METOPE I. (2) ROME, TRAJAN'S COLUMN: MAILED HORSEMAN PURSUED BY ROMAN AUXILIARY CAVALRY (see pp. 167 f.)

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(1) ROME, COLUMN OF MARCUS AURELIUS: ROMAN 'CATAPHRACTARII'. (2) DURA-EUROPOS: GRAFFITO SHOWING SASSANIAN 'CLIBANARIUS' CHARGING (see pp. 168, 170)

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the mailed *contarii* on the Column of Marcus Aurelius—i.e. he wears only a coat of mail and carries a *contus* in his right hand. Thus, we have additional evidence that Roman *cataphractarii*, even in the third and fourth centuries, were simply mailed *contarii*.

Almost all of the units of *cataphractarii* mentioned in the *Notitia Dignitatum*, a document notoriously difficult to date and assess, are otherwise unknown—the exceptions will be noted—and it is usually impossible, therefore, to relate them to the units listed above :

Orientis :	5, 34	<i>equites catafractarii Biturigenses—comitatenses</i>
	6, 35	<i>equites catafractarii—comitatenses</i>
	6, 36	<i>equites catafractarii Ambianenses—comitatenses</i> <sup>41</sup>
	8, 29	<i>equites catafractarii Albigenes—comitatenses</i>
	31, 52	<i>ala prima Iovia catafractariorum, Pampane</i> (under <i>dux Thebaidos</i> ; probably created by Diocletian) <sup>42</sup>
	39, 16	<i>cuneus equitum catafractariorum, Arubio</i> (under <i>dux Scythiae</i> ; cf. Amm. Marc. 28, 5, 6) <sup>43</sup>
Occidentis :	7, 200	<i>equites catafractarii iuniores</i> (under <i>comes Britanniae</i> ) <sup>44</sup>
	40, 21	<i>praefectus equitum catafractariorum, Morbio</i> (under <i>dux Britanniae</i> )

The concentration of these units in the east differs markedly from the earlier pattern of distribution in the western provinces and probably reflects a policy revision of the fourth century—perhaps in response to the challenge of Persian cavalry.

The following tabulation of extant evidence will illustrate how little we know regarding the origin and service records of the *cataphractarii* :

Unit	Home of known personnel	Service record
<i>ala I Gallorum et Pannoniorum catafractatae</i>	Italy	Moesia inferior
<i>ala nova catafractaria Philippiana</i>	Mesopotamia Osrhoene	Eastern province(s) ? Germania superior ? Pannonia inferior ? Arabia
<i>equites catafractarii Pictavenses</i>	Dacia	Macedonia ? Belgica
<i>equites cataphractarii Ambianenses</i>		Gallia Cisalpina
<i>Numeri catafractariorum (1)</i>	Belgica	Gallia Cisalpina
(2)		Gallia Lugdunensis (Cisalpina ?)
(3)		Germania superior ?
(4)		

That cataphracts were recruited from both western and eastern provinces is noteworthy—an indication that the eastern monopoly of cataphract warfare gradually was eliminated within the Roman army.<sup>45</sup> On the other hand, the service records of the various units, admittedly incomplete, do not provide a consistent picture of cataphract activity. Some units certainly served on strategic frontiers—e.g. Germania superior, Moesia inferior—but others evidently were stationed in provinces well back from the *limites*—e.g. Macedonia, Gallia Cisalpina. We cannot assume, therefore, that the *cataphractarii* served exclusively in the most critical areas.

The Roman development of mailed cavalry was more than matched in the third century by the aggressive Sassanians, who repeatedly threatened the critical Syrian *limes*. Like their Parthian predecessors the Sassanians relied heavily on a diversified cavalry corps, which included units of rather bizarre cataphracts—known to the Romans as *clibanarii* (from κλίβανος, a covered pot in which bread was baked, i.e. a kind of oven).<sup>46</sup> This Roman designation was most appropriate, for the *clibanarius*, completely encased in scale or chain armour and riding to battle on the hot plains of Persia, might well be termed a mounted oven.

<sup>41</sup> Probably related to *CIL* XIII, 3493, 3495 (see n. 40).

<sup>42</sup> W. Ensslin, 'Zur Ostpolitik des Kaisers Diocletian,' *SBAW*, phil.-hist. Abt., Heft 1 (1942), 56.

<sup>43</sup> On *cuneus* see Grosse, o.c. (n. 39), 51.

<sup>44</sup> Cf. Hoffmann, loc. cit. (n. 40).

<sup>45</sup> The national and regional character of auxiliary

units gradually was decreased by 'the practice of filling up the *auxilia* with recruits from the region in which they were stationed' (Alföldi, o.c., n. 39, 211).

<sup>46</sup> H. Frisk, *Griechisches Etymologisches Wörterbuch* 1 (1960), s.v. κλίβανος. R. M. Rattenbury, *CR* 56 (1942), 114, appropriately suggested that *clibanarius* be translated 'baking-tin man'.

The word *clibanarius* occurs for the first time in SHA, *vita Alexandri Severi* 56, 5 (purportedly from a speech delivered by Alexander Severus on 25 September, 233): 'centum et viginti milia equitum eorum (i.e. Sassanian) fudimus, cataphractarios, quos illi clibanarios vocant, decem milia in bello interemimus, eorum armis nostros armavimus'. This passage has been often cited as proof that *clibanarius* is the 'Roman name for the Persian cavalryman armed like the Roman *cataphractarius*'.<sup>47</sup> Admittedly *clibanarius* and *cataphractarius* are interchanged indiscriminately by some fourth-century writers, especially Ammianus Marcellinus, but the two units were differentiated by their armour and were organized separately during the fourth century. M. Rostovtzeff, one of the few scholars to appreciate the distinction, explained the simultaneous use of *cataphractarii* and *clibanarii* as an effort 'to distinguish the *cataphractarii* of the Roman auxiliary forces from the real *clibanarii* of the Persian and later Roman army . . . there was a certain difference between them . . . the *cataphractarii* wearing no helmets and using horses not protected by armour as a rule'.<sup>48</sup>

The best description of the Sassanian *clibanarius* is provided by Heliodorus, *Aethiopica* 9, 15.<sup>49</sup> The rider is almost completely encased in bronze or iron: a one-piece mask-helmet covers his head entirely with the exception of eye-slits; his body, from shoulders to knees, is protected by a mail suit constructed of small, overlapping bronze or iron plates, which are sufficiently pliant to permit freedom of movement; attached to the mail coat are greaves to protect his legs and feet.<sup>50</sup> The horse is similarly armoured: head covered by a metal plate (*προμετωπίδιον*); back and flanks protected by a 'blanket' of thin iron plates (*σκέπτοσμα σιδηρόπλοκον*); legs fitted with metal greaves (*κνημῖδες*). Only the horse's belly and presumably his eyes and tail are unprotected.

Heliodorus' description has been corroborated by the discovery of the 'charging *clibanarius*' graffito and contemporary horse-armour at Dura-Europus.<sup>51</sup> The armour worn by the horseman of the graffito is strikingly similar to it (see pl. xi, 2): *lorica squamata* coat from shoulders to knees; arms, legs and feet protected by parallel metal rings (*lorica segmentata*). Heliodorus' mask-helmet, however, does not appear; the graffito horseman wears a conical helmet with a mesh veil attached to protect the face. The horse is outfitted in the manner described by Heliodorus—only the hoofs, tail and eyes are visible. That such armour is not merely the product of literary or artistic imagination was proved by the discovery, in 1932 at Dura-Europus, of several 'blankets', constructed of iron plates stitched to a cloth backing, which were designed to protect the horse's back and flanks.<sup>52</sup> The literary descriptions and artistic representations also detail the relatively simple weapons of the third-century *clibanarius*: the long pike (*contus*) and a sword or dagger worn at the side. It should be noted that these are also the weapons of the Roman *contarius* and *cataphractarius* (i.e. mailed *contarius*); evidently few, if any, of these cavalrymen carried a bow.

Some have assumed that the event recorded in the *vita Alexandri Severi* (that the Romans after the battle collected and began to use the Sassanian weapons—'eorum armis nostros armavimus') marks the adoption of *clibanarii* armour and tactics by the Romans.<sup>53</sup> This is a rather misleading assumption. The arms picked up by the victorious Romans may have included the armour of the fallen *clibanarii*, but there is no indication in contemporary or later sources that the Romans actually used this kind of armour before the reign of Aurelian.

In 272 Aurelian's cavalry, composed entirely of light Mauretanian and Dalmatian *equites*, decisively defeated the Palmyrene *clibanarii* under Zabdus, Zenobia's best general,

<sup>47</sup> R. Ghirshman, *Iran: Parthians and Sassanians* (London, 1962), 350. The Persian equivalent would be *tanūrik*, from *tanūr* = 'oven' (A. Christensen, *L'Empire des Sassanides* [Copenhagen, 1907], 60).

<sup>48</sup> *The Excavations at Dura-Europus, Fourth Season* (1933), 218; but cf. Gabba, o.c. (n. 16), 65, n. 66.

<sup>49</sup> With which compare Nazarius, *Paneg.* 10, 22, 4. Sallust, *Hist. fr.* 65 and Justin 40, 2, 6–7 mention eastern mailed cavalry wearing *lorica plumata* (cf. mailed figures on Trajan's Column, n. 36 *supra*).

<sup>50</sup> On the mask-helmet: Amm. Marc. 16, 10, 8; Grosse, o.c. (n. 39), 325 ff.; H. Seyrig, *Archaeology* 5 (1952), 69; O. Benndorf, *Denkschriften der Kgl. Akad. der Wiss., phil-hist. Cl.* 28 (1878), 301 ff. On greaves:

Grosse, 327 ff. The thighs are exposed. According to Heliodorus, this was intended to facilitate mounting, but more probably the break in the armour was designed to ensure stability—by applying the naked thighs to the horse's flanks the rider could maintain his balance, even without stirrups (cf. Plutarch, *Luc.* 26, 6; 28, 1–7).

<sup>51</sup> *The Excavations at Dura-Europus, Fourth Season* (1933), 13, 207 ff., pl. xxii (2); also in Ghirshman, o.c. (n. 47), pl. 63c (cf. pls. 69, 121b, 122, 163–6, 219–220).

<sup>52</sup> For photographs see C. Hopkins, *Illustrated London News* 183 (2 September 1933), 362.

<sup>53</sup> For example, Fiebiger, *RE* IV (1901), 22; F. Altheim, *Die Soldatenkaiser* (Frankfurt, 1939), 154.

near Immae.<sup>54</sup> In this engagement the unarmoured Roman cavalry again proved that mobility, rather than elaborate defensive armour, was essential for victory. Nonetheless, some scholars would approve Alföldi's statement that Aurelian had 'learned to respect the *clibanarii* of Zenobia and [subsequently] introduced such regiments into the army on a large scale'.<sup>55</sup> In support of this assertion the mailed figures which appear on the Arch of Galerius are usually adduced. But this monument does not provide any firm information regarding Aurelian's role in cavalry development—indeed, the Arch was erected in the reign of Diocletian, whose concern for military reform may well have accelerated development of the mailed cavalry.<sup>56</sup> Moreover, the mailed figures depicted are not *clibanarii*, but *cataphractarii*: they wear mail coats (scale armour) extending to the thighs and carry a large round shield and long pike; their horses are not armoured.<sup>57</sup> The mailed figures of the Arch are more appropriately cited as evidence that the Roman *cataphractarii*, perhaps Dacian auxiliaries in this instance, were simply mailed *contarii*. The figures certainly do not prove that Aurelian introduced *clibanarii*.

Nor does the list of *vexillationes* of *clibanarii* in the *Notitia Dignitatum*—which almost certainly describes military conditions of the late fourth/early fifth century—provide incontrovertible evidence that Aurelian was responsible for this innovation:

Or.:	5, 40	<i>Equites primi clibanarii Parthi</i> —comitatenses
	6, 32	<i>Equites Persae clibanarii</i> —palatini
	6, 40	<i>Equites secundi clibanarii Parthi</i> —comitatenses
	7, 31	<i>Equites promoti clibanarii</i> —comitatenses
	7, 32	<i>Equites quarti clibanarii Parthi</i> —comitatenses <sup>58</sup>
	7, 34	<i>Cuneus equitum secundorum clibanariorum Palmirenorum</i> —comitatenses
	11, 8	<i>Schola scutariorum clibanariorum</i> (under <i>magister officiorum</i> )
Occ.:	6, 67	<i>Equites sagittarii clibanarii</i> (under <i>magister equitum praesentalis</i> ) <sup>59</sup>
	7, 185	<i>Equites clibanarii</i> (under <i>comes Africæ</i> )

That Aurelian created the *equites promoti* seems probable, but there is no reason to believe that he also introduced the *promoti clibanarii*.<sup>60</sup> Moreover, it cannot be demonstrated that the remaining eight units were connected in any way with Aurelian.

The *Notitia Dignitatum*, however, does illustrate succinctly the subsequent Roman commitment to mailed cavalry. The first recorded use of Roman *clibanarii* in the fourth century occurred (312) near the city of Turin, where Constantine engaged the rival army of Maxentius, which included a contingent (size unknown) of *clibanarii*. Constantine evidently was not unfamiliar with their tactics and indeed responded swiftly and effectively. Instructing the centre of his army—which did not include mailed cavalry—to give way to the 'irrevocabilem impetum hostis' he was able to trap the charging *clibanarii* behind his lines and envelop them. Prevented from turning quickly by their stiff armour, the surprised and confused *clibanarii* were annihilated.<sup>61</sup>

This failure of the *clibanarii* may have arrested the development of these units in the Roman army, for they evidently were not used again until the battle of Mursa (28 September, 351). According to Julian, many, if not most, of Constantius' cavalrymen were *clibanarii* and to their success—against unarmoured *equites*—Constantius evidently owed his victory.<sup>62</sup> Julian's estimate of the role of the *clibanarii*, however, may be inflated and misleading; it is

<sup>54</sup> That Aurelian's army included *cataphractarii* is suggested by SHA, *vita Aureliani* 11, 4 ('equites cataphractarios octingentos'). On the battle: Eutropius 9, 13, 2; Festus, *Brev.* 24; Jerome, *Chron.* ann. 273, p. 222 [Helm]; Zosimos 1, 50; G. Downey, *TAPhA* 81 (1950), 57 ff. Only Festus and Jerome locate the battle at Immae; Festus alone says that the Palmyrene cavalry were *clibanarii*.

<sup>55</sup> Alföldi, o.c. (n. 39), 218; cf. Altheim, o.c. (n. 53), 156.

<sup>56</sup> The *Notitia Dignitatum* lists three armament 'factories' (*clibanaria*) which probably were constructed under Diocletian and were engaged specifically in the production of armour for the *clibanarii*: at Antioch in Syria (Or. 11, 22), at Caesarea in Cappadocia (Or. 11, 28), and at Nicomedia in Bithynia (Or. 11, 28; cf. Lactantius, *De mort. pers.*

7, 9). On these see Ensslin, o.c. (n. 43), 65; R. MacMullen, *AJA* 64 (1960), 30.

<sup>57</sup> K. F. Kinch, *L'Arc de Triomphe de Salonique* (Paris, 1890), pl. VIII, commentary p. 42: a cavalryman (Dacian?), armed with a *contus* and shield, is depicted wearing a coat of mail and riding an unarmoured horse.

<sup>58</sup> It is doubtful that Parthians = Sassanians actually served in these units. What happened to *III clibanarii Parthi*?

<sup>59</sup> This unit, which is not mentioned in any other source, evidently was unique—because it proved impracticable?

<sup>60</sup> See Grosse, o.c. (n. 39), 16 ff.

<sup>61</sup> Nazarius, *Panegyr.* 10, 23, 4—24, 5; but cf. the variant account in *Panegyr.* 9, 6, 3—5.

<sup>62</sup> Julian, *Or.* 1, 37 D; cf. II, 57 C.

contradicted by Zosimos (2, 50), who stresses the role of the *sagittarii* and does not mention the *clibanarii*. *Clibanarii* did march in Constantius' triumph (357), but from this we may infer only that these units had fought with the Emperor and were still in service.<sup>63</sup>

The battle of Strasbourg (357), described in detail by Ammianus (16, 12), decided the immediate future of Roman mailed cavalry. Julian deployed several *turmae* of *cataphractarii* on the right wing, opposite the Alamannic cavalry, which was augmented by *pedites discursatores et leve*s. While Roman infantry on the left held fast against the Alamanni and were beginning to push the enemy back, the *catafracti equites* faltered and suddenly began to retreat in disorder. According to Ammianus (16, 12, 37-38), only Julian's intervention prevented a complete rout. Julian could scarcely have applauded the retreat of the cataphracts and may well have decided to retire most of these units—even though the Persians continued to employ *clibanarii*.<sup>64</sup> A *cuneus equitum cataphractorum* took part in Valentinian's campaign against the Saxons (370?), but in the major battle of Adrianople we hear nothing of Roman mailed cavalry, *clibanarii* or *cataphractarii*.<sup>65</sup>

## D

The record of Roman mailed cavalry in the fourth century—with the possible exception of the battle of Mursa—clearly was less than impressive. To assess the tactical effectiveness of mailed cavalry in the Roman army, however, one must examine separately the record of the two units—i.e. *cataphractarii* and *clibanarii*. This separation is essential (if my remarks above concerning the differences in armour are correct), for the *cataphractarius* wearing only a coat of mail obviously could employ tactics different from those imposed upon the totally armoured *clibanarius* astride an equally encumbered horse. The heavy horses—i.e. small head, muscular body, and short, thick legs—used by both units could move their riders across a battlefield in a straight line, but without stirrups stability was at best precarious.<sup>66</sup> This deficiency would be critical for the *clibanarius*, less so for the *cataphractarius*, who, if unseated, at least could stand up and fight.

The Roman *cataphractarius* is usually depicted—e.g. on the Column of Marcus Aurelius—jabbing at his opponent with a *contus* held in one hand (see pl. xi, 1). As jabbing and thrusting require delicate balance, we may infer that the mobility of the rider was not entirely restricted by the coat of mail. Unfortunately, the artistic evidence is not sufficient to permit conclusions regarding the tactics of the *clibanarii*. We cannot determine, for example, whether the *clibanarius* held the *contus* in one hand or with both hands.<sup>67</sup> In any case, it is difficult to imagine the *clibanarius*, whose arms were covered with *lorica segmentata*, possessing sufficient strength and agility to engage in jab-and-thrust tactics. Only one tactic seems feasible—*charge à fond*.<sup>68</sup> Thus the *clibanarius* could be expected to perform effectively only under ideal conditions—on level ground, in fairly moderate temperatures,

<sup>63</sup> Amm. Marc. 16, 10, 8: 'cataphracti equites (quos clibanarios dictant)'. Whether Ammianus' equation *cataphractarii* = *clibanarii* accurately represents fourth-century usage cannot be determined. With Rostovtzeff I am inclined to believe that they were distinguished by their armour.

<sup>64</sup> On Persian *clibanarii* (= *cataphractarii*): Amm. Marc. 19, 7, 4 (siege of Amida, A.D. 359); 20, 7, 9 (at Bezabde, 360); 24, 6, 8 (against Julian, 363). In his discussion of the last encounter Ammianus surprisingly says that the horses were protected by leather coverings: 'operimentis scorteis equorum multitudine omni defensa'.

<sup>65</sup> Adrianople: Amm. Marc. 28, 5, 6. The appearance of *cataphractarii* and *clibanarii* in the *Notitia Dignitatum*, however, suggests that mailed units were reintroduced later in the fourth century.

<sup>66</sup> Depictions of large cavalry horses: *contarius*—Tropaeum Traiani, metopes I, II, IV, V (Florescu, o.c. n. 32, 270 ff.); *cataphractarius*—Column of Marcus Aurelius, pls. XLIV, LVII, *passim* (see n. 38); Espérandieu, o.c. (n. 34), V 3940, 3941 = CIL XIII, 3495, 3493; VIII, 6044 = CIL XIII, 6238; Arch of

Galerius, see n. 57; *clibanarius*—Dura graffito, see n. 51; cf. Cichorius, o.c. (n. 36), pls. XXXI, XXXVII.

<sup>67</sup> *Cataphractarius* holding *contus* in one hand: Espérandieu, o.c. (n. 34), V, 3940 = CIL XIII, 3495; VIII, 6044 = CIL XIII, 6238; Column of Marcus Aurelius, pls. XLIV, LVII (see n. 38). Non-Roman *cataphractarii* holding *contus* in both hands: M. Rostovtzeff, *History of Decorative Painting in Southern Russia* (in Russian; St. Petersburg, 1914), pls. LXXVIII (1), LXXIX, LXXXIV (3) = Minns, o.c. (n. 10), fig. 218, p. 304; Minns, fig. 224, p. 314. Neither the mailed figures of Trajan's Column nor the Dura graffito wield the two-handed *contus*.

<sup>68</sup> Alföldi, o.c. (n. 39), 208 ff.; cf. Gabba, o.c. (n. 16), 64. One of the mailed figures in scene XXXVII of Trajan's Column employs the 'Parthian shot'—which must have been difficult, if not impossible, to execute in full armour. It should be pointed out, of course, that the Column figures may be simply 'the sculptor's interpretation of something heard or seen, answering to nothing ever actually worn . . .' (F. A. Brown, *Excavations at Dura-Europus, Sixth Season* [1936], 445).

and against an unimaginative opponent. In battle, however, the military objective of the two units was identical. The few literary accounts of their performance indicate clearly that neither the *cataphractarius* nor the *clibanarius* confronted enemy mailed cavalry ; both were employed against unarmoured cavalry or infantry.

To combat mailed cavalry of both types various counter-tactics were devised which reduced their effectiveness in battle. To stand firm in the teeth of charging mailed cavalry obviously invited disaster. The best defence, in fact, was an imaginative offence—if the mailed rider could be unseated the *charge à fond* would fail. Hence, the opposing cavalry or infantry attempted either to trip the charging horses or to attack the exposed areas of horse and rider—the horse's belly or the rider's thighs. Alternatively, the opposing force at the outset could simulate flight and rely upon environmental factors, heat and dust, to reduce the fighting skill and endurance of the mailed cavalry. In almost all of their recorded encounters with enemy mailed cavalry, the Romans employed one or several of these counter-measures and were victorious.<sup>69</sup>

In view of this dismal record of failure the historian may well question the wisdom of the Roman decision to adopt mailed cavalry. In this, however, the Roman military leaders did not act purposelessly. On the contrary, the decision was made in response to increasing pressure on the frontiers and in recognition of the need for a stronger and more flexible cavalry corps. Doubtless the Romans were cognizant of the inherent disadvantages of mailed cavalry, but they evidently believed that some protection against barbarian archers and novel cavalry tactics was essential. In their view, the protection afforded by the coat of mail might well justify adoption.

The evolutionary character of the Roman adoption of mailed cavalry—a process comparable in purpose and development to the Assyrian and Chinese experience—must be stressed.<sup>70</sup> During the Republic cavalry innovation was not required—the legionary *pedites*, for the most part, constituted a satisfactory deterrent and offensive force. As the Romans expanded into Gaul and Germany and encountered resistance from barbarian bowmen and cavalry, however, military requirements changed. The initial Roman response (creation of the *antesignani*) was conditioned by their legionary experience. But in time—as the heavy horse was acquired, the skill of eastern mounted archers became known, and the practice of recruiting non-Romans as auxiliaries was established—the Romans began to experiment with various cavalry tactics. Under Vespasian the *sagittaria equitata* appeared ; by the reign of Trajan at least, perhaps under Vespasian, the *contarius* had been introduced ; and finally under Hadrian the mailed *contarius* = *cataphractarius* was added. The principal stimulus to this development, as we have seen, was the Sarmatian and Dacian pressure on the Moesian frontier. Thus, although the personnel of the Roman mailed cavalry initially and for some time was recruited from the eastern provinces, Roman cavalry experimentation clearly was designed to match and defend against the tactics of western opponents.

The adoption of the *clibanarius* in the fourth century is another matter. Units of these highly specialized horsemen probably were created not only to match Persian tactics—the primary stimulus—but also to attain tactical superiority *vis-à-vis* the majority of Rome's enemies (e.g. the Alamanni and other western and eastern tribes). In any case, it is quite improbable that the introduction of the *clibanarii*, which would create new personnel and armament problems (attested by the construction of *clibanaria* under Diocletian), was as accidental as the author of the *vita Alexandri Severi* suggests.

The Roman experiments with mailed cavalry, especially the *clibanarius*, ended in failure. In their attempt to defy reality, however, the Romans demonstrated once again their willingness to adopt foreign military techniques and tactics—even if these were manifestly impracticable.

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<sup>69</sup> See, for example, Plutarch, *Luc.* 28 ; Appian, *Mith.* 85 ; Justin 40, 2, 6 ; Valerius Flaccus 6, 239-41 ; Herodian 15, 2-3 ; Amm. Marc. 16, 12, 21-22 ; Gabba, o.c. (n. 16), 65.

<sup>70</sup> The Assyrian response to nomadic cavalry has been illustrated above ; the interesting Chinese (Han) parallel is discussed by H. G. Creel, *Amer. Hist. Review* 70 (1965), 663 ff.